

Appl. No. 10/085,780
Amendment dated January 27, 2005
Reply to Office Action mailed September 16, 2004

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (presently amended): A method for retrieving a record records in a hierarchical set of the records having a plurality of hierarchical levels and a plurality of hierarchical depths, each of the records having a tag that is unique within the hierarchical set of the records, the method comprising:

identifying one of the records in the hierarchical set of the records;
selecting a second record by indicating a relational characteristic of the identified record;

modifying the tag based on the relational characteristic and a predetermined numeric mapping of related records, thereby producing a key corresponding to the second record that is related to the identified record by the relational characteristic;

indexing the hierarchical set of the records only once, thereby selecting ~~one or more of the records~~ the second record within the hierarchical set of the records, wherein indexing the hierarchical set of the records only once comprises applying the key to the hierarchical set of the records; and

retrieving the selected records record, and
wherein the key comprises a second tag uniquely identifying the second record.

Claim 2 (original): The method of claim 1, wherein applying comprises: selecting those of the record in the hierarchical set of the records having a tag that matches the key.

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Claim 3 (original): The method of claim 2, wherein identifying one of the records comprises:

receiving a selection of the one of the records from a user; and
receiving a command from the user; and wherein
modifying the tag is based on the command from the user.

Claim 4 (original): The method of claim 3, wherein each of the records has one or more fields, further comprising:

displaying a field of each of the retrieved records on a display, wherein the position of each of the fields on the display represents the hierarchical depth and hierarchical level of the corresponding one of the retrieved records.

Claim 5 (original): The method of claim 2, wherein:

each tag is a number having a plurality of digits;
the position of each of the digits represents one of the hierarchical depths;
the value of each of the digits represents one of the hierarchical levels;
and modifying the tag comprises:
selecting at least one of the digits according to the command from the user; and
changing the value of the selected digits according to the command from the user.

Claim 6 (original): The method of claim 2, wherein:

each tag is a number having a plurality of digits;
the position of each of the digits represents one of the hierarchical depths;
the value of each of the digits represents one of the hierarchical levels;
the command from the user requests retrieving the children of the identified record; and
modifying the tag comprises:

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selecting the digit corresponding to the hierarchical depth of the identified record; and

setting the value of each digit corresponding to a hierarchical depth below the hierarchical depth corresponding to the selected digit to a wildcard value.

Claim 7 (original): The method of claim 2, wherein:

each tag is a number having a plurality of digits;

the position of each of the digits represents one of the hierarchical depths;

the value of each of the digits represents one of the hierarchical levels;

the command from the user requests retrieving the parent of the identified record; and

modifying the tag comprises:

selecting the digit corresponding to the hierarchical depth of the identified record; and

setting the value of the selected digit to a null value.

Claim 8 (original): The method of claim 2, wherein each of the records represents one of a message and a folder.

Claims 9-13 (withdrawn)

Claim 14 (presently amended): A method for selecting a record records in a hierarchical set of the records having a plurality of hierarchical levels and a plurality of hierarchical depths, each of the records having a tag that is unique within the hierarchical set of the records, the method comprising:

identifying one of the records in the hierarchical set of the records;

selecting a second record by indicating a relational characteristic of the identified record;

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modifying the tag based on the relational characteristic and a predetermined numeric mapping of related records; and
indexing the hierarchical set of the records only once, thereby selecting ~~one or more of the records~~ the second record within the hierarchical set of the records, wherein indexing the hierarchical set of the records only once comprises applying the modified tag to the hierarchical set of the record records.

Claim 15 (original): The method of claim 14, wherein:
each tag includes a plurality of digits;
the position of each of the digits represents one of the hierarchical depths;
and
the value of each of the digits represents one of the hierarchical levels.

Claim 16 (presently amended): The method of claim 14, wherein applying comprises:

selecting those of the records in the hierarchical set of the records having a tag that matches the modified tag key.

Claim 17 (presently amended): At least one computer programmed to execute a process for retrieving records in a hierarchical set of the records having a plurality of hierarchical levels and a plurality of hierarchical depths, each of the records having a tag that is unique within the hierarchical set of the records, the process comprising:

identifying one of the records in the hierarchical set of the records;
selecting a second record by indicating a relational characteristic of the identified record;
modifying the tag based on the relational characteristic and a predetermined numeric mapping of related records, thereby producing a key

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corresponding to the second record that is related to the identified record by the relational characteristic;

indexing the hierarchical set of the records only once, thereby selecting ~~one or more of the records~~ the second record within the hierarchical set of the records, wherein indexing the hierarchical set of the records only once comprises applying the key to the hierarchical set of the records; and

retrieving the selected records, and
wherein the key comprises a second tag uniquely identifying the second record.

Claim 18 (original): The computer of claim 1, wherein applying comprises: selecting those of the record in the hierarchical set of the records having a tag that matches the key. .

Claim 19 (original): The computer of claim 18, wherein identifying one of the records comprises:

receiving a selection of the one of the records from a user; and
receiving a command from the user; and wherein
modifying the tag is based on the command from the user.

Claim 20 (original): The computer of claim 19, wherein each of the records has one or more fields, and the process further comprises:

displaying a field of each of the retrieved records on a display, wherein the position of each of the fields on the display represents the hierarchical depth and hierarchical level of the corresponding one of the retrieved records.

Claim 21 (original): The computer of claim 18, wherein:
each tag is a number having a plurality of digits;
the position of each of the digits represents one of the hierarchical depths;

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the value of each of the digits represents one of the hierarchical levels; and
modifying the tag comprises:

selecting at least one of the digits according to the command from the
user; and

changing the value of the selected digits according to the command from
the user.

Claim 22 (original): The computer of claim 18, wherein:

each tag is a number having a plurality of digits;

the position of each of the digits represents one of the hierarchical depths;
the value of each of the digits represents one of the hierarchical levels;
the command from the user requests retrieving the children of the
identified record; and

modifying the tag comprises:

selecting the digit corresponding to the hierarchical depth of the identified
record; and

setting the value of each digit corresponding to a hierarchical depth below
the hierarchical depth corresponding to the selected digit to a wildcard value.

Claim 23 (original): The computer of claim 18, wherein:

each tag is a number having a plurality of digits;

the position of each of the digits represents one of the hierarchical depths;
the value of each of the digits represents one of the hierarchical levels;
the command from the user requests retrieving the parent of the identified
record; and

modifying the tag comprises:

selecting the digit corresponding to the hierarchical depth of the identified
record; and

setting the value of the selected digit to a null value.

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Claim 24 (original): The computer of claim 18, wherein each of the records represents one of a message and a folder.

Claim 25-29 (withdrawn)

Claim 30 (presently amended): At least one computer programmed to execute a process for selecting records in a hierarchical set of the records having a plurality of hierarchical levels and a plurality of hierarchical depths, each of the records having a tag that is unique within the hierarchical set of the records, the process comprising:

identifying one of the records in the hierarchical set of the records;

selecting a second record by indicating a relational characteristic of the identified record;

modifying the tag based on the relational characteristic and a predetermined numeric mapping of related records; and

~~indexing the hierarchical set of the records only once, thereby selecting one or more of the records~~ the second record within the hierarchical set of the records, wherein indexing the hierarchical set of the records only once comprises applying the modified tag to the hierarchical set of the record records.

Claim 31 (original): The computer of claim 30, wherein:

each tag includes a plurality of digits;

the position of each of the digits represents one of the hierarchical depths;

and

the value of each of the digits represents one of the hierarchical levels.

Claim 32 (presently amended): The computer of claim 30, wherein applying comprises:

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selecting those of the records in the hierarchical set of the records having a tag that matches the modified tag key.

Claim 33 (presently amended): An apparatus for retrieving records in a hierarchical set of the records having a plurality of hierarchical levels and a plurality of hierarchical depths, each of the records having a tag that is unique within the hierarchical set of the records, the apparatus comprising:

means for identifying one of the records in the hierarchical set of the records;

means for selecting a second record by indicating a relational characteristic of the identified record;

means for modifying the tag based on the relational characteristic and a predetermined numeric mapping of related records, thereby producing a key corresponding to the second record that is related to the identified record by the relational characteristic;

means for indexing the hierarchical set of the records only once, thereby selecting one or more of the records the second record within the hierarchical set of the records, wherein means for indexing the hierarchical set of the records only once comprises means for applying the key to the hierarchical set of the records; and

means for retrieving the selected records, and
wherein the key comprises a second tag uniquely identifying the second record.

Claim 34 (original): The apparatus of claim 1, wherein means for applying comprises:

means for selecting those of the records in the hierarchical set of the records having a tag that matches the key.

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Claim 35 (original): The apparatus of claim 34, wherein means for identifying one of the records comprises:

means for receiving a selection of the one of the records from a user; and means for receiving a command from the user; and wherein modifying the tag is based on the command from the user.

Claim 36 (original): The apparatus of claim 35, wherein each of the records has one or more fields, further comprising:

means for displaying a field of each of the retrieved records on a display, wherein the position of each of the fields on the display represents the hierarchical depth and hierarchical level of the corresponding one of the retrieved records.

Claim 37 (original): The apparatus of claim 34, wherein: each tag is a number having a plurality of digits;

the position of each of the digits represents one of the hierarchical depths; the value of each of the digits represents one of the hierarchical levels; and

means for modifying the tag comprises:

means for selecting at least one of the digits according to the command from the user; and

means for changing the value of the selected digits according to the command from the user.

Claim 38 (original): The apparatus of claim 34, wherein:

each tag is a number having a plurality of digits;

the position of each of the digits represents one of the hierarchical depths; the value of each of the digits represents one of the hierarchical levels;

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the command from the user requests retrieving the children of the identified record; and

means for modifying the tag comprises:

means for selecting the digit corresponding to the hierarchical depth of the identified record; and

means for setting the value of each digit corresponding to a hierarchical depth below the hierarchical depth corresponding to the selected digit to a wildcard value.

Claim 39 (original): The apparatus of claim 34, wherein:

each tag is a number having a plurality of digits;

the position of each of the digits represents one of the hierarchical depths;

the value of each of the digits represents one of the hierarchical levels;

the command from the user requests retrieving the parent of the identified record; and

means for modifying the tag comprises:

means for selecting the digit corresponding to the hierarchical depth of the identified record; and

means for setting the value of the selected digit to a null value.

Claim 40 (original): The apparatus of claim 34, wherein each of the records represents one of a message and a folder.

Claim 41-45 (withdrawn)

Claim 46 (presently amended): An apparatus for selecting records in a hierarchical set of the records having a plurality of hierarchical levels and a plurality of hierarchical depths, each of the records having a tag that is unique within the hierarchical set of the records, the apparatus comprising:

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means for identifying one of the records in the hierarchical set of the records;

means for selecting a second record by indicating a relational characteristic of the identified record;

means for modifying the tag based on the relational characteristic and a predetermined numeric mapping of related records; and

means for indexing the hierarchical set of the records only once, thereby selecting ~~one or more of the records~~ the second record within the hierarchical set of the records, wherein indexing the hierarchical set of the records only once comprises applying the modified tag to the hierarchical set of the record records.

Claim 47 (original): The apparatus of claim 46, wherein:
each tag includes a plurality of digits;

the position of each of the digits represents one of the hierarchical depths;
and

the value of each of the digits represents one of the hierarchical levels.

Claim 48 (presently amended): The apparatus of claim 46, wherein means for applying comprises:

means for selecting those of the records in the hierarchical set of the records having a tag that matches the modified tag key.

Claim 49 (presently amended): Computer-readable media embodying instructions executable by a computer to perform a method for retrieving records in a hierarchical set of the records having a plurality of hierarchical levels and a plurality of hierarchical depths, each of the records having a tag that is unique within the hierarchical set of the records, the method comprising:

identifying one of the records in the hierarchical set of the records;

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selecting a second record by indicating a relational characteristic of the identified record;

modifying the tag based on the relational characteristic and a predetermined numeric mapping of related records, thereby producing a key corresponding to the second record that is related to the identified record by the relational characteristic;

~~indexing the hierarchical set of the records only once, thereby selecting one or more of the records~~ the second record within the hierarchical set of the records, wherein indexing the hierarchical set of the records only once comprises applying the key to the hierarchical set of the records; and retrieving the selected records, and

wherein the key comprises a second tag uniquely identifying the second record.

Claim 50 (original): The media of claim 1, wherein applying comprises: selecting those of the record in the hierarchical set of records having a tag that matches the key. .

Claim 51 (original): The media of claim 50, wherein identifying one of the records comprises:

receiving a selection of the one of the records from a user; and receiving a command from the user; and wherein modifying the tag is based on the command from the user.

Claim 52 (original): The media of claim 51, wherein each of the records has one or more fields, the method further comprising:

displaying a field of each of the retrieved records on a display, wherein the position of each of the fields on the display represents the hierarchical depth and hierarchical level of the corresponding one of the retrieved records.

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Claim 53 (original): The media of claim 50, wherein:

each tag is a number having a plurality of digits;
the position of each of the digits represents one of the hierarchical depths;
the value of each of the digits represents one of the hierarchical levels;
and
modifying the tag comprises:
selecting at least one of the digits according to the command from the user; and
changing the value of the selected digits according to the command from the user.

Claim 54 (original): The media of claim 50, wherein:

each tag is a number having a plurality of digits;
the position of each of the digits represents one of the hierarchical depths;
the value of each of the digits represents one of the hierarchical levels;
the command from the user requests retrieving the children of the identified record; and
modifying the tag comprises:
selecting the digit corresponding to the hierarchical depth of the identified record; and
setting the value of each digit corresponding to a hierarchical depth below the hierarchical depth corresponding to the selected digit to a wildcard value.

Claim 55 (original): The media of claim 50, wherein:

each tag is a number having a plurality of digits;
the position of each of the digits represents one of the hierarchical depths;
the value of each of the digits represents one of the hierarchical levels;

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the command from the user requests retrieving the parent of the identified record; and

modifying the tag comprises:

selecting the digit corresponding to the hierarchical depth of the identified record; and

setting the value of the selected digit to a null value.

Claim 56 (original): The media of claim 50, wherein each of the records represents one of a message and a folder.

Claim 57-61 (withdrawn)

Claim 62 (presently amended): Computer-readable media embodying instructions executable by a computer to perform a method for selecting records in a hierarchical set of the records having a plurality of hierarchical levels and a plurality of hierarchical depths, each of the records having a tag that is unique within the hierarchical set of the records, the method comprising:

identifying one of the records in the hierarchical set of the records;

selecting a second record by indicating a relational characteristic of the identified record;

modifying the tag based on the relational characteristic and a predetermined numeric mapping of related records; and

indexing the hierarchical set of the records only once, thereby selecting one or more of the records the second record within the hierarchical set of the records, wherein indexing the hierarchical set of the records only once comprises applying the modified tag to the hierarchical set of the record records.

Claim 63 (original): The media of claim 62, wherein:

each tag includes a plurality of digits;

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the position of each of the digits represents one of the hierarchical depths;
and

the value of each of the digits represents one of the hierarchical levels.

Claim 64 (presently amended): The media of claim 62, wherein applying
comprises:

selecting those of the records in the hierarchical set of the records having
a tag that matches the modified tag key.

65-82. (withdrawn)